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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,927	03/30/2001	Wei Liu	SP01-070	7675

22928 7590 09/27/2002

CORNING INCORPORATED
SP-TI-3-1
CORNING, NY 14831

EXAMINER

NGUYEN, TAM M

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 09/27/2002

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/821,927

Applicant(s)

LIU ET AL.

Examiner

Tam M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 32-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 and 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-31, drawn to a process of hydrotreating of a liquid hydrocarbon stream, classified in class 208, subclass 208R+.
- II. Claims 32-35, drawn to a composition of a catalyst, classified in class 502, subclass 60+.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product as claimed can be used in a materially different process such as a hydrogenation process of unsaturated hydrocarbons.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Kees van der Sterre on August 22, 2002 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-31.

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Affirmation of this election must be made by applicant in replying to this Office action. Claims 32-35 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 18 and 25 are indefinite because it is unclear what happens when the liquid hydrocarbon is contacted with the catalyst bed.

Claims 5, 6, and 21 recite the limitation "said hydrotreating catalyst components" in lines 1-2 of claims 5 and 6 and in line 2 of claim 21. There is insufficient antecedent basis for this limitation in the claims.

Claim 18 recites the limitation "the treated hydrocarbon effluent" in line 6. There is insufficient antecedent basis for this limitation in the claim.

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Claim 18 recites the limitation "the sour gas" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Information Disclosure Statement

All of the even page numbers are not in Reference AS (filed on October 4, 2001). Therefore, the reference is not considered.

References AV (filed on October 4, 2001) and AV (filed on December 31, 2001) are not in the file. Therefore, the references are not considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10, 14, 15, are rejected under 35 U.S.C. 102(b) as being anticipated by A. Cybulski and K.A.Moulijn, "Monoliths in Heterogeneous Catalysis", Catal. Rev.-Sci. Eng., 36(2), 179-270 (1994).

Cybulski discloses a monolithic catalyst which can be used in a hydrodesulfurization and/or hydrodenitrogenation process wherein the catalyst has a honeycomb configuration and the catalyst comprises Alumina, Mo, and Co. The process is operated at a superficial liquid velocity between 0.01 and 0.07 m/s (1-7 cm/s), at a pressure of from 3-8 MPa (30-80 bars), and at a temperature of from 509-573 K (235-300 °C). It is noted that Cybulski does not specifically

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disclose that the one-pass conversion is greater than 50, 80, or 90%. However, the process of Cybulski is similar to the claimed process in terms of catalyst and operating conditions. Therefore, it would be expected that the process of Cybulski would have the one-pass conversion as claimed. (See entire reference)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 11-13 and 16-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over A. Cybulski and K.A. Moulijn, "Monoliths in Heterogeneous Catalysis", Catal. Rev.-Sci. Eng., 36(2), 179-270 (1994).

Regarding claims 11-13, Cybulski does not specifically disclose the boiling point or the type of the hydrocarbon feed. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Cybulski by using the claimed feed because the type of hydrocarbon feed or the boiling point of the feed is not crucial to the process of Cybulski. Therefore, one of skill in the art would employ any hydrocarbon feed including the claimed feed in the process of Cybulski.

Regarding claims 16, 17, 22, 23, 25, and 28, Cybulski does not specifically disclose the ratio of hydrogen to liquid feed. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Cybulski by using the claimed ratio because it is effective to use an amount of hydrogen greater than the stoichiometric amount of hydrogen and the claimed amount of hydrogen used is greater than the stoichiometric amount. Therefore, one of skill in the art would use any amount of hydrogen which is greater than the stoichiometric amount (including the claimed amount) in the process of Cybulski.

Regarding claims 16, 17, 22, 23, 25, and 28, Cybulski does not specifically disclose that the LHSV is greater than about 0.1 h^{-1} . However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of

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Cybulski by using the claimed LHSV because it has been held by the patent law that the selection of reaction parameters such as temperature and concentration would have been obvious. More particularly, where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Aller 105 USPQ 233, 255 (CCPA 1955). In re Waite 77 USPQ 586 (CCPA 1984). In re Scherl 70 USPQ 204 (CCPA 1946). In re Irmischer 66 USPQ 314 (ccpa 1945). In re Norman 66 USPQ 308 (CCPA 1945). In re Swenson 56 USPQ 372 (CCPA 1943). In re Sola 25 USPQ 433 (CCPA). In re Dreyfus 24 USPQ 52 (CCPA 1934).

Regarding claim 18, Cybulski does not specifically disclose that the feed contains less than 3 wt. % of sulfur. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Cybulski by using the claimed feed because the amount of sulfur in the feed is not critical to the process of Cybulski. Therefore, one of skill in the art would use a hydrocarbon feed which contains any amount of sulfur including the claimed amount in the process of Cybulski. As a result, the modified process of Cybulski would provide a product stream containing the claimed amount of sulfur.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tam M. Nguyen whose telephone number is (703) 305-7715. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode can be reached on 703 308 4311. The fax phone numbers for the

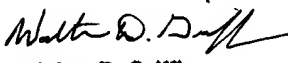
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organization where this application or proceeding is assigned are (703) 305-5408 for regular communications and (703) 305-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tam M. Nguyen
Examiner
Art Unit 1764

Tam Nguyen/ TN
September 25, 2002


Walter D. Griffin
Primary Examiner